May Mixed Waste Subgroup Highlights

The Hanford Mixed Waste (MW) Subgroup met on May 15, 1997. Joe Waring stated that the MWFA is still working on their response to our needs based on last month's meeting with them. Tom Fewell from INEL called Joe requesting more information about our TRU waste. The information was given to them to aid in their response.

Norm Olson distributed copies of the two TDI proposals that the MW Subgroup had given approval to submit. The two are: "Portable Gas Chromatograph with Surface Acoustic Wave Detector for Rapid Field Analysis of Volatile and Semivolatile Organic Compounds in Mixed Wastes" and "Rapid Analysis of Metals in Mixed Waste by X-Ray Fluorescence Spectrometry". The WRAP chromatograph proposal was not submitted because Carlsbad (WIPP) is submitting one with other Sites (LANL and INEL) and asked us to go in on their proposal. We have sent them a letter stating that we are willing to be part of their proposal. If this is funded we would be $500K to purchase one unit, install it, and train our personnel to use it. We were also asked to be a partner on another proposal that WIPP is putting together. This proposal, which we agreed to go in on, is for a portable system to handle and package RH-TRU waste. We would also get one unit at Hanford if this proposal is funded. We are scheduled to know by the end of June which TDI proposals will receive funding. Norm is also looking at forming a sensor-type technology expert group for the Hanford Site that would cut across the subgroups and contractors.

Joe Westsik (PNNL) gave a viewgraph presentation that explained the objective of the three PNNL proposals being presented to the subgroup as well as the needs being met by the three proposals. The three proposals are being developed to prepare for the MWFA call for proposals to meet the Hanford needs. The objective is to obtain input and guidance from the subgroup members so as to focus the proposals and get active user participation. The three proposals are: Material Handling of Remote-Handled, Low-Level Mixed and TRU Waste; Treatment of Remote-Handled Mixed and TRU Waste Using a Regenerable Ce (IV) Process; and Decontamination of Hallam/SRE Sodium for Re-Use.

Brian Hatchell (PNNL) discussed the Material Handling proposal using a viewgraph presentation. This proposal is to use a portable, remote material handling system to survey, size reduce, and segregate RH-LLMW and TRU large-sized equipment. This would include waste from the waste tanks as well as process vessels in the canyon facilities and PUREX tunnel. The intent is to separate the high activity/TRU portion of the waste from the CH non-TRU parts thus reducing handling and storage costs considerably. The system being proposed for demonstration over the next two years consists of a remote forklift and crane and a gantry with a manipulator for working on the waste. The manipulator would be used to deploy a TRU detection sensor and a number of different end effectors for cutting, disassembly, and decontamination. The entire system would be enclosed in an airtight, portable structure. The proposal is for $200K for each of the next two years. There is an industry partner, PaR Systems, that potentially could be part of this demo. Project Management Plans (PMPs) are being started for RH waste treatment at Hanford. If this proposal was funded, the information from the demo could be used in the PMP. The functional design criteria will be based on the PMP and will be used to either perform the

function on-site or privatize it. At the present time, T-Plant has $10 million in the budget to be modified to perform this type of work and $2 million per year for facility operations.

Dean Kurath (PNNL) presented a viewgraph presentation on a proposal that uses a regenerable Ce (IV) process for decontaminating RH solid waste. This same process has been used to decontaminate stainless steel in a electrochemical cell by immersion. The objective of the proposed work is to provide a conceptual design of a regenerable Ce (IV)/nitric acid process for the treatment of RH mixed and TRU wastes. Some of the issues to be resolved by this study are:

- How many times can the solution be recycled due to impurity build up?
- What is the process performance on nonstainless steel materials?
- Can the Ce (IV) system stand up to the high-rad environment?
- Which system design (membrane vs. nonmembrane) is more effective and efficient?
- What are the waste disposal pathways for the spent Ce (IV)/nitric acid solution?
- Are there any criticality considerations for use on RH-TRU waste?

The proposal is for $200-400K for FY98 and would also include a comparison to other aqueous treatment methods.

David Baldwin (PNNL) presented a viewgraph presentation on the third PNNL proposal dealing with the decontamination of Hallam/SRE Sodium for recycle. At the present time, there are three methods under development to deal with liquid sodium. Two of these methods result in waste products or no sodium metal left at all. One method, which is the focus of this proposal, is to purify the sodium for reuse. This proposal uses a combination of technologies to purify the sodium. The first is beta-alumina electrorefining that removes radioisotopes and other dissolved impurities, except tritium. The tritium would then be removed by in-line gettering. There are industry partners available for the beta-alumina system design and construction. The intent of the proposal is to perform small-scale glovebox testing next FY for $300K. In subsequent years, the system would be scaled up, with industry involvement, and tested. The goal is a system that would be used with 55 gallon drums. The resulting sodium has a potential value of $500K after being cleaned up. One comment from the subgroup is that perhaps waste minimization funding could be used for this proposal.

Norm Olson gave the subgroup a heads up that the technology needs process will be starting earlier this year in order to meet the Focus Area time lines. FDH wants to improve the process this year as well as reduce technology redundancy across subgroups. At the next MW subgroup meeting, the members will be asked for improvements in the process of identifying and prioritizing the technology needs.

The next subgroup meeting will be on June 12, at a place to be determined.